



US Environmental Protection Agency Regions II and III NPDES Permitting Approach for Discharges of Nutrients in the Chesapeake Bay

I. PURPOSE

This paper describes the approach by the Environmental Protection Agency Regions II and III (EPA) to develop and issue appropriate National Pollutant Discharge Elimination System (NPDES) permits for discharges of nutrients to the Chesapeake Bay watershed from significant point sources consistent with the requirements of the Clean Water Act and goals of the *Chesapeake 2000*. Discussions with the States of Virginia (VA), Maryland (MD), Pennsylvania (PA), Delaware (DE), West Virginia (WV), New York (NY) and the District of Columbia (DC) informed this paper.

II. PROBLEM

Nutrient pollution is the most critical problem affecting the Chesapeake Bay. Excess nutrients cause water quality conditions that are harmful to aquatic living resources. While there has been substantial progress in reducing the annual loads of nutrients to the Bay from both point and nonpoint sources in the past twenty years, EPA estimates that an additional annual load reduction of 6.7 million lbs of phosphorus and 103 million lbs of nitrogen is needed to achieve the water quality goals of the Chesapeake Bay. This paper sets forth EPA's expectations on developing appropriate NPDES permits to achieve further nutrient reductions from significant point sources in the Bay watershed.

III. BACKGROUND

- All states with Bay tidal waters are currently in the process of modifying current water quality standards by proposing refined aquatic life uses and criteria applicable to the Chesapeake Bay and its tidal tributaries consistent with recent EPA guidance.¹ DE has adopted revised Chesapeake Bay uses and criteria and submitted the revisions to EPA for review. MD and DC expect to finalize modifications by the end of calendar year 2004. VA expects to complete its process in 2005.
- EPA and its state partners, under the cooperative Chesapeake Bay Program (CBP), agreed to cap annual nutrient loads (nutrient cap load allocations) for each basin and jurisdiction sufficient to achieve the recommended Bay aquatic life uses and criteria. While achieving those basin nutrient cap load allocations will result in water quality improvements throughout the Chesapeake Bay watershed, the basin nutrient cap load allocations are generally driven by the load reductions necessary to achieve the recommended Bay dissolved oxygen criteria for the MD portion of the Chesapeake Bay.²
- For the James and York Rivers, the basin nutrient cap load allocations and the tributary strategies for these rivers are based on preventing low dissolved oxygen levels, reduced underwater grasses, and excessive algal populations.²
- The Bay states are currently finalizing tributary strategies to achieve the reductions from point and nonpoint sources necessary to meet the CBP basin nutrient cap load allocations. Those allocations were calculated to achieve the recommended aquatic life uses and water quality criteria applicable throughout the Bay and tidal tributaries.
- The term "significant point sources" discussed in this paper means a subset of all point sources located in the Chesapeake Bay watershed (from MD, VA, DE, WV, PA, NY, and DC) that have

been identified by EPA and the States as discharging significant amounts of nitrogen and phosphorus.³

- Permits must be written to achieve applicable water quality standards.

IV. APPROACH

A. When the state tributary strategies are final, for new significant discharges or increased discharges from existing significant point sources, EPA expects the NPDES permitting authority to issue such NPDES permits consistent with the applicable state tributary strategy. In order to provide for issuance of permits that authorize new or increased discharges of nutrients, the tributary strategies should explicitly reserve loads for future growth and/or set forth other processes to offset the new or increased loads by making additional reductions in loads from other sources.

B. When the revised Maryland water quality standards are effective, EPA expects the NPDES permitting authority to issue NPDES permits for existing significant point sources consistent with the applicable state tributary strategy. For example, one way to comply with this requirement might be to place a cap loading for a facility, identified in the tributary strategy, directly into the NPDES permit as a loading limit.

***Exception:** For the York and the James Rivers, the nutrient allocations assigned to these rivers are based on preventing low dissolved oxygen levels, reduced underwater grasses, and/or excessive algal populations in these rivers. In 2005, Virginia expects to adopt revised numeric standards for these rivers addressing dissolved oxygen, underwater grasses, water clarity, and chlorophyll 'a'. Therefore, when the revised water quality standards for these rivers are effective, EPA expects Virginia to place nutrient-based controls in NPDES permits consistent with the tributary strategies.*

C. When issuing nutrient-based permit requirements, the NPDES permitting authority may:

- Express permit limits for nitrogen and phosphorus, intended to protect the Chesapeake Bay and its tidal tributaries, as annual load limits, without the need to additionally express the limits as monthly, weekly, or daily limits.⁴
- Employ watershed permits to regulate nutrient discharges from significant sources of nitrogen and phosphorus.
- Incorporate appropriate compliance schedules into the permits consistent with the state tributary strategies, where the state water quality standards allow for such compliance schedules. In keeping with the timeline and intent of the Chesapeake 2000 Agreement, generally, these compliance schedules in the permit and/or administrative order should require completion of construction by 2010.⁵

D. EPA also encourages the NPDES permitting authority to consider the use of other provisions to enhance the effectiveness of the nutrient permitting process, such as:

- Place total nitrogen and phosphorus monitoring requirements in the permits.
- Place numeric nitrogen and phosphorus effluent limits to cap loadings in permits for significant point sources.
- Incorporate a general and/or Bay specific re-opener clause in permits for significant point sources.

- Incorporate a requirement in permits for significant point sources to minimize the discharge of nitrogen and phosphorus.
- Inform each significant point source that their respective allocation under the tributary strategies will be incorporated into upcoming permit requirements. Furthermore, the significant point source should be encouraged to commence facility planning and design to achieve the allocation.
- Consider the use of watershed permits to regulate nutrient controls from point sources in the Bay.
- Promote opportunities for trading of nutrient reductions.

E. EPA Oversight of NPDES Program in States

To monitor states' progress in placing appropriate limits in permits, EPA will closely review the nutrient reduction requirements in those permits submitted to EPA. Furthermore, after the revised Maryland water quality standards become effective, EPA intends to review NPDES permits for significant point sources as identified by the CBP as contributing nutrients to the Chesapeake Bay and its tidal tributaries.

F. Re-evaluation of Permitting Approaches

This permitting approach presumes and is reliant on timely revisions to the state water quality standards for the Chesapeake Bay and its tidal tributaries. If any delay occurs in the ongoing revision of state water quality standards that creates obstacles and/or interferes with installation of point source controls for nutrients, EPA intends to reassess this permitting approach. As part of the planned 2007 Chesapeake Bay reevaluation, EPA and the states intend to reevaluate the NPDES permitting practices for nutrients in the Bay watershed. During that 2007 reevaluation period, EPA reserves its authority to reassess the current schedule for the development of total maximum daily loads for the Chesapeake Bay.

V. REFERENCES

1. US EPA. 2003. *Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and its Tidal Tributaries*. EPA 903-R-03-002. Chesapeake Bay Program Office, Annapolis, Maryland.
2. US EPA. 2003. *Setting and Allocating the Chesapeake Bay Basin Nutrient and Sediment Loads*, EPA 903-R-03-007. Chesapeake Bay Program Office, Annapolis, Maryland.
3. Chesapeake Bay Program Nutrient Reduction Technology Cost Task Force. November 2002. *Nutrient Reduction Technology Cost Estimations for Point Sources in the Chesapeake Bay Watershed*. Chesapeake Bay Program Office, Annapolis, Maryland.
4. Memo from J. Hanlon to J. Capacasa. *Annual Permit Limits for Nitrogen and Phosphorus for Permits Designed to Protect Chesapeake Bay and its tidal tributaries from Excess Nutrient Loading under the National Pollutant Discharge Elimination System*. March 3, 2004.
5. Chesapeake Executive Council. 2000. *Chesapeake 2000*, June 28, 2000.

This paper discusses existing requirements of the Clean Water Act and regulations codified in the NPDES implementing regulations. Those CWA provisions and implementing regulations contain legally binding requirements. This document describes those requirements but does not substitute for those provisions or regulations. The recommendations in this paper are not binding; there may be other approaches that would be appropriate in particular situations. Each permitting decision will be made on a case-by-case basis and will be guided by the applicable requirements of the CWA and implementing regulations taking into account comments and information presented at that time by interested persons. EPA may change this guidance in the future.